

IN THE CLAIMS:

Please cancel Claims 10 to 12 and incorporate the substance of Claim 12 into independent Claim 9 as indicated below. Please amend the remaining claims as follows:

1. (Currently Amended) A scanning optical apparatus comprising:  
a light source capable of being modulated;  
a deflecting element for deflecting and scanning a beam emitted from said light source;  
a scanning optical element for imaging said deflected beam into a spot shape on a scanned surface; and  
an optical element for synchronous detection for directing the deflected beam from said deflecting element to a sensor to take the timing of image writing beginning, wherein an optical axis of said optical element for synchronous detection is coincident with a principal ray of the deflected beam from said deflecting element; and  
a scanning position detecting unit means for detecting the position of the deflected beam on the scanned surface at a point having at least position corresponding to one image height separate from the optical axis of said scanning optical element.
2. (Previously Presented) A scanning optical apparatus according to Claim 1, wherein said optical element for synchronous detection is an anamorphic lens.

3. (Previously Presented) A scanning optical apparatus according to Claim 1, wherein said optical element for synchronous detection is made of a plastic material.

4. (Previously Presented) A scanning optical apparatus according to Claim 1, wherein said scanning optical element is made of a plastic material.

5. (Previously Presented) A scanning optical apparatus according to Claim 1, wherein said optical element for synchronous detection and said scanning optical element are integrally molded by plastic injection molding.

6. (Currently Amended) A scanning optical apparatus according to Claim 1, further comprising a second optical element intermediate said light source and said deflecting element for converting a light beam from said light source into a linear image elongated in a main scanning direction, wherein said optical element for synchronous detection and said second optical element are integrally molded by plastic injection molding.

7. (Previously Presented) A scanning optical apparatus according to Claim 1, wherein said scanning optical element is comprised of a refracting optical element and a diffracting optical element.

8. (Currently Amended) A scanning optical apparatus according to Claim 1, wherein said scanning optical element effects correction control of correcting a scanning magnification in conformity with the output of said scanning position detecting ~~means~~ unit.

9. (Currently Amended) A color image forming apparatus for scanning a beam from at least one scanning optical apparatus on a plurality of image bearing members to thereby form a color image, said ~~scanning optical~~ color image forming apparatus comprising:

a light source;

a deflecting element for deflecting and scanning a beam emitted from said light source;

a scanning optical element for imaging said deflected beam into a spot shape on the scanned surfaces of said image bearing members;

an optical element for synchronous detection for directing the deflected beam from said deflecting element to a sensor to take the timing of image writing beginning, wherein an optical axis of said optical element for synchronous detection is coincident with a principal ray of the deflected beam from said deflecting element; and

a registration detecting unit ~~means~~ for detecting a positional deviation in the main scanning direction of a marking of a predetermined shape formed on each of said image bearing members by each scanning optical apparatus is provided at a position corresponding to an image height separate from the optical axis of said scanning optical element;

wherein said registration detecting unit is disposed so as to be capable of detecting two image heights substantially symmetrical with respect to the optical axis of said scanning optical element, and

a correcting unit for effecting correction control of correcting the timing of image writing beginning by an amount corresponding to

$$\Delta A = K \times (\Delta 1 + \Delta 2)/2,$$

where  $\Delta 1$  is the amount of registration deviation at a first image height,  $\Delta 2$  is the amount of registration deviation at a second image height, and  $K$  is a constant.

10. to 12. (Cancelled)

13. (Currently Amended) A color image forming apparatus according to Claim 9, wherein said registration detecting unit means is disposed so as to be capable of detecting two image heights substantially symmetrical with respect to the optical axis of said scanning optical element, and effects correction control of correcting the scanning magnification by an amount corresponding to

$$\Delta A' = K' \times (\Delta 1 - \Delta 2)/2,$$

where  $\Delta 1$  is the amount of registration deviation at a first image height,  $\Delta 2$  is the amount of registration deviation at a second image height, and  $K'$  is a constant.

14. (Cancelled)

15. (Original) An image forming apparatus comprising a scanning optical apparatus according to Claim 1, and a printer controller for converting code data inputted from an external apparatus into an image signal and inputting it to said scanning optical apparatus.

16. (Currently Amended) A color image forming apparatus ~~comprising a scanning optical apparatus~~ according to Claim 9, and further comprising a printer controller for converting code data inputted from an external apparatus into an image signal and inputting it to said ~~scanning optical apparatus~~ with which said light source is modulated.

17. (Cancelled)

Please add Claims 18 and 19, as follows:

18. (New) A scanning optical apparatus according to Claim 1, wherein said scanning position detecting unit detects the deflected beam at exactly one single image height separate from the optical axis of said scanning optical element in an upstream direction of scanning.

19. (New) A scanning optical apparatus according to Claim 1, wherein said scanning position detecting unit detects the deflected beam at exactly one single image

height separate from the optical axis of said scanning optical element in an downstream direction of scanning.